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supplement

SUPPLEMENT

Since the first printing of the PLAY SPACE DESIGN manual in 1983, the manual has been found useful by numerous community groups throughout Manitoba and beyond in the development of community parks and school grounds. During this time there has been much "feed-back" on the manual's content and constructive comments on how it can be improved. The following supplement has been compiled for distribution at the 1990, Playspace Design Symposium: Preparing for the 21st Century, co-sponsored by the Manitoba Parks and Recreation Association; the Manitoba Association of Landscape Architects; the City of Winnipeg, Parks and Recreation; and the Province of Manitoba, Culture Heritage and Recreation. It contains information not included in the original PLAY SPACE DESIGN manual, and reflects the first step in the process of revision and update. It is intended that the manual will be completely revised within the next year and therefore your comments will be greatly appreciated. Address your comments to Prof. Charlie Thomsen, Department of Landscape Architecture, Russell Building, University of Manitoba, Winnipeg, MB, R3T 2N2.

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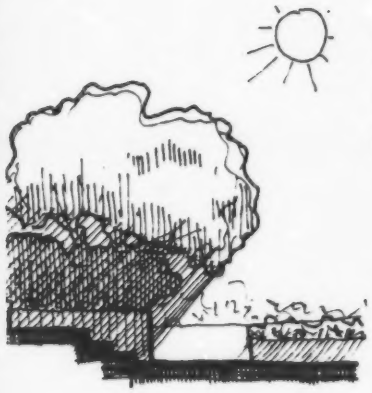
disability

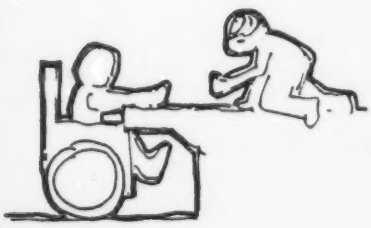
DISABILITY AND INTEGRATION

As more school aged children with disabilities attend community schools greater attention must be taken at developing integrated outdoor play facilities. We should design playgrounds that not only allow but encourage children with disabilities to play alongside children without similar disabilities. In Winnipeg, there already have been a number of schools which have either developed plans or are well on their way to transforming the traditional playground into a place that will accomodate these needs. When developing an integrated play facility one must keep in mind the need for developing a challenging environment for all degrees of ability, therefore, it is not always desirable nor possible to make all areas or components of the playground accessible for all children. What does result with the development of an integrated facility is the creation of a better play environment for all.

It must be understood that not all disabilities are the same and, therefore, the planner must understand the range of needs and abilities for each special group of children. While these needs vary the following discussion identifies the primary characteristics of visual, hearing, and physical disabilities.



VISUAL DISABILITIES - Within this category of disability children have limited clarity or distance of vision. They have difficulty in perceiving light and dark, and perhaps even some colours. Colours often blend together and closely related textures cannot be discerned. Glare from light or reflective surfaces often compound the problem making it difficult and uncomfortable to navigate through the outdoor space. Low light levels cast by heavy shadows, make it difficult for many low vision people to perceive hazards such as stairs, changes in ground surface, or overhanging edges of benches or branches of trees.



HEARING IMPAIRMENTS - With this disability children have mild to moderate difficulty in communicating with other children beyond a few meters. Because of this problem direct visual access to other children must be provided as an aid to understanding what is said and meant. The general noise level of activity on the playground further makes communication difficult for these children.

PHYSICAL DISABILITIES - Children in this category may be confined to a wheelchair or may have difficulty walking without the aid of crutches, a cane, a walker, braces, artificial limbs, or even holding onto a friend's arm. With reduced agility walking across uneven or slippery surfaces, or across areas which collect standing water, ice or loose gravel present a real problem. Handrails

and nonskid ramps become a neccessity. Many children with impaired mobility not only have problems with motor control over specific parts of the body, they may also have difficulty in responses to external stimuli, such as touch, temperature, pain and sometimes, even awareness of body position. Often, with faulty internal thermostats they are unable to adjust their body temperature needs to meet external demands. In hot weather they may be unable to perspire freely, and thus the danger of heat stroke exists even at a relatively low temperature. Likewise, cold and dampness can cause pain and/or affect muscle and joint flexibility. Thus, people with mobility limitations need opportunities to escape from uncomfortable climatic conditions, which for some may become life threatening.

The following points are general conditions which must be considered in the design of children's play areas which respond to the needs of those having physical impairments.

a) provide barrier-free access from street and/or school into the play area;
b) availability and barrier-free access to washroom facilities;
c) availability of rest stations within the play area;
d) availability and accessibility to shelter from sun and wind;
e) availability and accessibility to drinking fountain;
f) pathways should have firm surfaces free of joints that may cause tripping;
g) raised sand and water tables

REFERENCE LIST

The following publications provide more information on the subject designing playgrounds to accomodate disabled children.

Rehabilitative Environments: A Courtyard At The Winnipeg Rehabilitation Respiratory Hospital, by Geof Kerr, master's thesis, Department of Landscape Architecture, University of Manitoba, 1988.

Play Spaces To Accommodate Disabled Children, by James Melvin, Ottawa: CMHC, 1980.

Play For All Guidelines: Planning Design and Management of Outdoor Play Settings for all Children, by Robin Moore, et al (editors), MIG Communications, Berkeley, 1987.

Barrier-Free Site Design: Anyone Can Go Anywhere, by Gary Robinette, Van Nostrand Reinhold, New York, 1985.

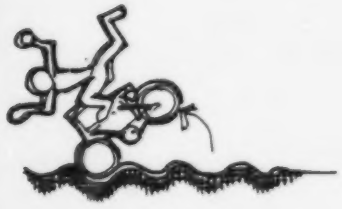
Design For Accessibility, by R. Sorensen, McGraw-Hill Book Co., New York, 1979.

surface material

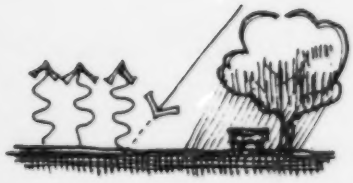
SURFACE MATERIALS

One of the most critical features of the playground is the surface material which is placed under and around playground equipment. If this material is inadequate or improperly installed serious injury can result. Care must be taken in the selection of the material and the way in which it is installed. The following are general comments assessing some of the good and bad qualities for different materials commonly used to surface play areas.

CRUSHED STONE - A rough and abrasive material most suitable for pathways, parking lots, and areas to be flooded in winter for skating. It should not be used near play equipment as it becomes compacted and "cement-like", and can cause injury to children should they fall. Constant traffic together with frost action will cause "rutting" and uneven surfaces to occur. The resulting depressions will trap water which when frozen in winter will cause a further hazard on the playground. Continuous maintenance is necessary to eliminate problems.

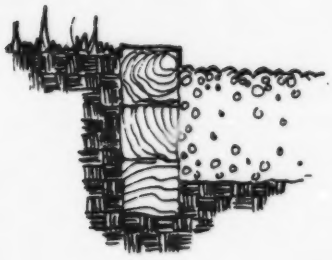


PAVING BRICK, or PRE-CAST CONCRETE PAVERS - An attractive and decorative material most suitable for pathways and sitting areas. This paving material is relatively easy to install or remove/replace/relocate if necessary. If installed properly following the manufacturers specifications a relatively smooth and stable surface can be maintained. Although initial cost may be high it is relatively maintenance free and has the added advantage of being simple enough to install with inexperienced local help. As a classroom project pre-cast concrete pavers can be made by the children with the help of an experienced adult. Pavers made this way can provide the opportunity for children to create their own designs and thus leave in a controlled manner their "signatures" on the playground.



ASPHALT - An extremely versatile material whose plastic nature can adapt to just about any form; it can be rolled smooth to create excellent court or game surfaces and pathways, or warpped to make basins to collect water or hold sand. Because of its hardness it should not be used near play equipment, and due to its semi porous nature it "takes" paint well. With its dark color it tends to heat up in direct sunlight and requires shade to help reduce overheating. The cost for installation follows a simple formula; the larger the area the cheaper and easier it is to install.

SAND - One of the most versatile and useful materials to use in the development of a children's play area. It has excellent impact absorption qualities, relatively low initial cost, is durable and drains well, and because of its pliable nature it is an excellent material for children to shape and mold according to their creative imaginations. Fine sand when dry can easily blow around and get into children's eyes. It can also be easily picked up on shoes and clothing, and in this way become scattered beyond the edges of the play area. Walking through it is difficult and wheel chair passage is impossible. It does not compact, but can conceal sharp or other dangerous objects making frequent inspection and raking essential.

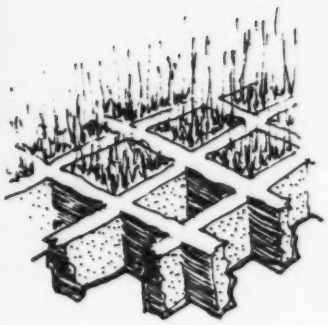


PEA GRAVEL - Good impact absorption qualities, durable, drains well, and foreign objects are not as easily entrapped as with sand. Although it is not easily blown about by the wind play activities often cause it to be spread beyond the boundaries of the play area. This can be a hazard when it is picked up and catapulted by mowing equipment or if it spreads on top of a hard paved surface it can be the same as walking on marbles and injuries can result. Walking on it is difficult and wheel chair passage impossible. It is readily available, relatively low in cost and easy to maintain.

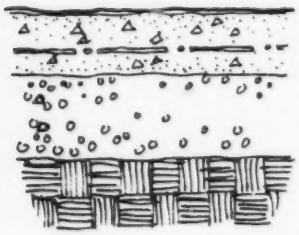
SHREDDED RUBBER - Where available this material can serve as an effective cushioning material under play equipment. The major difficulty is that the material is relatively light in weight and can be easily kicked about or blown by wind. Wind protection must be provided. It must be contained within the play area or it will become a maintenance "headache". It can damage mowing equipment or be catapulted becoming a dangerous missle. To be effective as a cushioning material it should be at least 25-30cm deep with good drainage.

WOOD CHIPS - An ideal mulching material for use in planted areas to reduce weeds and retain soil moisture. The material must be installed at least 10cm in depth to be effective and should be "well rotted", aged at least one year, before being used. Because of the danger of splinters and sharp edges, together with the fact that it decays it is less effective when used as a cushioning material under play equipment. As it is biodegradeable it must be replaced at least every three to four years.

GRASS - An ideal material for open field areas and areas where concentrated play activities do not occur. Regular or active play can quickly destroy the grass surface exposing bare soil. The soil can become easily eroded and muddy during wet weather. While attractive it is labour intensive to maintain. Adequate surface slope (1.5% min.) should be provided to avoid puddling and subsequent destruction of the grass.



PERFORATED LATTICE PAVERS - Another name for this material is "stabilized turf". It is manufactured from either concrete or plastic and comes in a variety of patterns. Its primary value is that it creates a stabilized surface that tollerates heavy use, and within which grass can be successfully grown in the surface voids. I is an excellent material to use for parking areas, service roads, pathways, and sitting areas. It forms a relatively hard and smooth surface with interesting textures and patterns, and yet has the appearance of being turf. It drains well reducing runoff and the need for a more extensive surface drainage system.



CONCRETE - A durable, low maintenance material used to create a smooth, level surface which is ideal for high traffic walkways, roadways and parking areas, and court games areas. It is critical that it has proper reinforcing and an adequate base otherwise cracking and settlement can occur causing an irregular and dangerous surface. It is costly and difficult to replace and repair. As it is hard and cold to touch (in winter) it should not be used to sit on or placed underneath and adjacent to play structures due to injuries from falling. The inflexible surface can be textured during installation to create a decorative or non-skid surface. Paint does not adhere as well to concrete as it does to asphalt. Salt when spread to melt ice can damage the surface. A minimum slope of 1½% should be maintained for proper drainage.

SYNTHETIC or MANUFACTURED RESILIENT MATERIALS - These materials can provide a durable, impact absorbing surface. They are generally flexible and can be used in a wide variety of circumstances. There are wide variations in the type and quality of each material. They must be properly installed otherwise they will "peel" up exposing the base material and/or anchoring devises. These materials should be installed on a hard, firm base such as concrete or asphalt. Because of relatively high cost in comparison to ther surface materials they are often limited to covering small areas such as directly under a climbing structure. The surface area must be level and well drained, especially to help avoid winter ice damage.

WOOD - All wood material that comes in contact with the ground, such as curbs and edging, retaining walls, decks, pavements and boardwalks should be pressure treated. The material should be well anchored to resist frost action and movement during play activity. The area surrounding the wood should be well drained to reduce the chance of rotting. Wood can be easily cut to fit just about any length or size, and it is relatively easy to install in comparison to concrete or metal. Where there is a chance of hand contact only untreated top quality wood should be used. This will reduce the chances of toxic contamination and splinters.

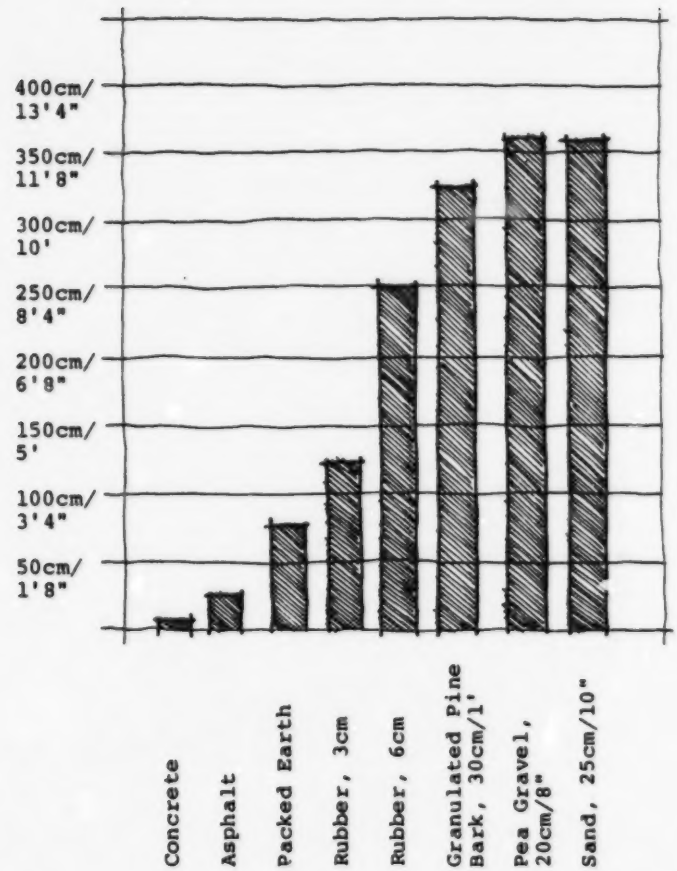
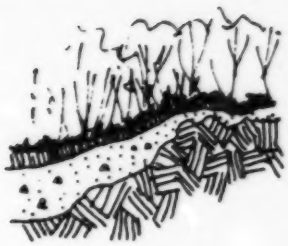


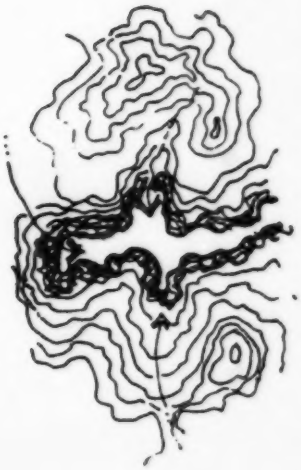
TABLE OF FALL HEIGHTS AND IMPACT ABSORPTION CAPABILITY OF SELECTED SURFACINGS

In the table above the columns show the height from which a child can fall head first onto different surfaces before the critical limit for causing concussion, expressed as 50 g, is exceeded (g = gravity).

Source of Information: Franklin Institute, 1978.

inventory





What do you look for at the site? Use information as it applies to the use and activities proposed for the site. Therefore, only collect information pertinent to the sites proposed program. The following is a checklist for site data.

GEOLOGY

Depth to and type of bedrock material; bearing capacity; ground water yield - quantity and quality. Fault conditions?

SOILS

Soil type (silt, clay, loam, sand) and depth by horizons; value as an engineering material depth to bedrock or parent material; chemical content (pH, acid/alkali); and as a planting medium. Erodability; permeability; shrink/swell capacity; agricultural suitability; wetness; depth to seasonal high water table; septic field potential.

LANDFORM

Elevations, slope gradients, wet areas or areas of potential flood hazard, physiographic zones. Patterns of landform. Visibility. Highest points - low points (potential frost pockets or stagnant air).

WATER

Watersheds and surface drainage pattern. Aquifer conditions; subsurface water movements; run off process for various surfaces; sediments erosion and deposition areas. Existing surface water bodies - variation and purity, oxygen content, clarity, depth and volume fluctuations, source, chemical content, availability (quantity).

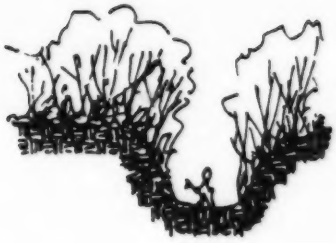
ECOLOGY

Dominant plant/animal communities - location and relative stability. Stage of plant succession.

Dependence of plants & wildlife on existing factors, self-regulation and sensitivity to change. Potentia plant and animal communities. Management recommendations. Specimen trees to be retained - their location, spread, species, and elevation at base. Wildlife migration or movement patterns (i.e., deer runs).

CLIMATE

Regional data - temperature variation; precipitation (when, how much), humidity; solar angle, sun angle (altitude and azimuth) cloudiness, wind direction and force.



Local microclimates - warm & cool slopes, air drainage, wind deflection and local breeze, shade; heat reflection and storage; plant indicators' frost pockets; snow drifting; frost depth, length of growing season and daylight hours. Sound levels, smell, atmospheric quality.

SENSUOUS QUALITIES

Character and relation of visual spaces; viewpoints; landmarks; vistas; visual focal points; character and rhythm of visual sequences. Quality and variation of light, sound, smell, feel. Views ON and OFF site and their qualities, good/bad.

MAN-MADE STRUCTURES

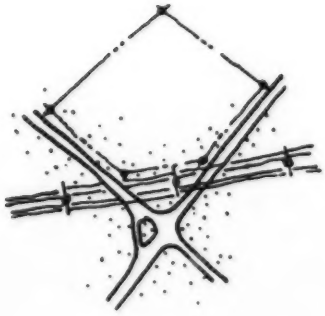
Existing buildings: location, size, type, use, condition. Circulation routes. Utilities - location, elevation, capacity.

LEGAL DESCRIPTION

Ownership boundaries, easements.
Zoning restrictions, ordinances.
Political & legal jurisdictions - deed restriction, building permits, etc.

LAND USE

Historical patterns, landmarks, historic significance. Present & future site uses. Potential access points to the site. Context! What future plans have been made for the adjacent site. What influence or impact will this have on the program proposed for "your" site.



HUMAN FACTORS

'Phenomenology of place' or of the site. The "Genius Locii". Personal interpretations and impressions of the site. Personal site reconissance and intuitions.

plants

PLANT MATERIAL

One of the most important yet most often neglected features of children's playgrounds are the incorporated plant materials. Masses of healthy shrubs not only provide food and cover for birds and other wildlife more importantly they provide valuable wind protection for younger children during cooler months of the year. Well placed trees provide the necessary shade during hot summer months, while beds of flowers provide colour and fragrance, as well as the potential for new discovery by the curious. In light of their importance it becomes critical to select plants which will not be harmful to children at play. The following charts identify plants that should not be planted on the playground.

THORNY PLANTS THAT GROW IN MANITOBA

Latin Name	Common Name	Type
Elaeagnus angustifolia	Russian Olive	small tree
Elaeagnus umbellata	Autum Olive	shrub
Shepherdia argentea	Silver Buffaloberry	small tree
Crataegus spp.	Hawthorn	shrub/sm.tree
Rosa spp.	Rose	shrub
Berberis spp.	Barberry	shrub

Although these plants have thorns and for that reason not be planted within the playground their characteristics make them effective barriers for places where pedestrian movement is not desired.

REFERENCE LIST

The following publications provide more information on the subject of toxic plants.

Human Poisoning From Native And Cultivated Plants, by James Hardin and Gayn Arena. Duke University Press, ISBN-8223-0303-5.

Plant Toxicity and Dermatitis, by Kenneth F. Lampe, William Welkins editor, 1968.

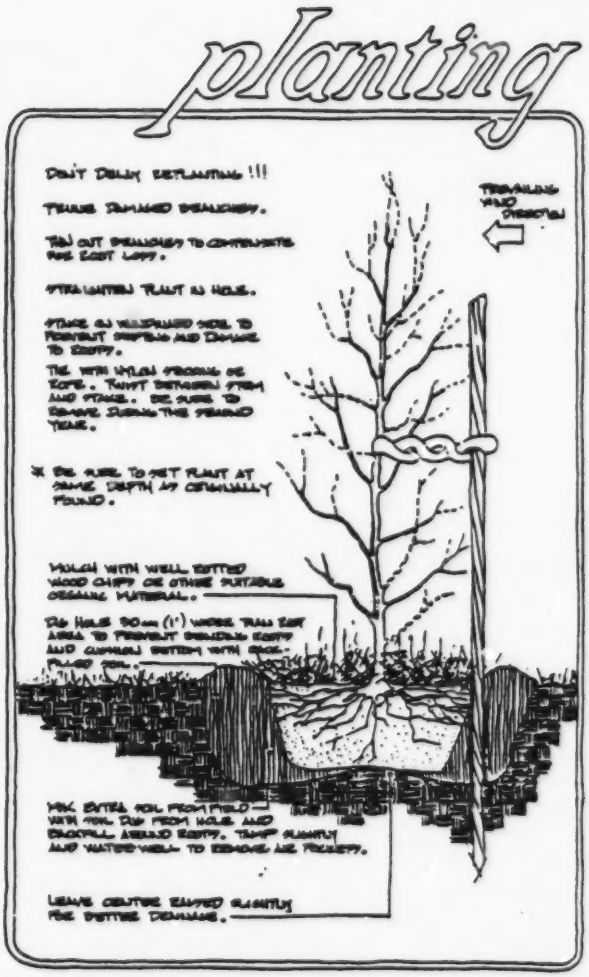
A Manual Of Poisonous Plants (Chiefly of Eastern North America, with brief notes on Economic and Medicinal Plants), by L.H. Pammel. The Torch Press, Cedar Rapids, Iowa, 1911.

Poisonous Plants from the United States and Canada, by John M. Kingsbury, Prentice-Hall, 1964.

The Sinister Garden", periodical, Horticulture, August 1977, pages 19 to 21.

"The Deadly Garden", periodical, Time, March 1976.

"Toxic Plants", by Louis Rouseau, et al, periodical, Landscape Architectural Review, March 1986.



PLANTING INSTRUCTIONS FOR NEW PLANT MATERIAL

It is recommended that you select plants which are suitable to your needs and location. Consult a Landscape Architect or Nurseryman for advice in this matter.
To prepare for planting, dig the ground deeply and at least a foot wider than the root ball.
Often the soil around home is not fertile. If existing soil is poor, discard it in favor of good topsoil.
For filling in under and around the plant, make a mixture of 25% peat moss and 75% topsoil.
With burlap (or can) still around the root ball, set plant in hole. Make sure top of ball is NO DEEPER than surrounding undisturbed ground. Remove can or pot (but leave burlap on). Fill nearly to ground level and tamp (with foot or tool) firmly. Cut strings and visible burlap away from ball.
Water throughly to remove air pockets. After it soaks in, finish filling hole and make a soil ring to collect water.

CARING FOR NEW PLANTS

Soak plant weekly for a month (two months if planted in June or July). During the first summer, water thoroughly every 10 days. Do NOT water daily.
A permanent mulch is necessary for evergreens and beneficial for all other plants. Tanbark, woodchips, cocoa hulls, and many other materials may be used 1" to 3" deep. Be sure woodchips are well rotted (at least one year old) or else they will absorb nitrogen out of the soil as they decay.
Large evergreens and trees often need bracing (guying) to reduce sway in windstorms. Ask for instructions from your Landscape Architect or Nurseryman.
Inquire about feeding. In most cases it is wise to wait a year before fertilizing.
After a dry spell in July, try to dig a divot of the backfill mixture with a trowl. If you can't, let a hose trickle for an hour or more to soak the soil deeply around the roots. If the divot was gummy, reduce the watering. Soggy soil prohibits root growth and is very harmful to plants.
Pruning may be advisable. Ask for insturctions. If a plant develops an unhealthy appearance, consult your nurseryman.

TOXIC PLANTS THAT GROW IN MANITOBA

This list is adapted from "Toxic Plants", by Louis Rouseau, et al, in Landscape Architectural Review, March 1986.

Latin Name	Common Name	Type	Toxic Part	Sympton
Aconitum spp.	Monkshood	Per. herb	6	
Ambrosia spp.	Ragweed	Ann. herb	7	2,3,4,15
Arisaema atrorubens	Jack-in-the-Pulpit	Perennial	5	6
Convallaria majalis	Lily-of-the-valley	Perennial	1,2,3	
Delphinium spp.	Larkspur	Perennial	3	
Digitalis spp.	Foxglove	Herb	6	7,10,11,16,20,24
Hedera helix arborescens	Ivy	Vine	3	
Hyacinthus orientalis	Hyacinth	Bulb	8	11,20
Hydranga spp.	Hydranga	Dec. shrub	2,9	11,13,20
Ipomoea violacea	Morning Glory	Herb	4	
Iris spp.	Blue-Flag		1,2,5	5,8,11,20
Juniperus communis	Common Juniper	Evgn.shrub	3,9	
Lathyrus adoratus	Sweet Pea	Per. herb	4	12,18,24,25
Lobelia spp.	Lobelia	Annual	6	19,20,23,24
Lonicera spp.	Honeysuckle	Dec. shrub	3	
Mirabilis jalapa	Marvel of Peru	Annual	4,10	7,11,20
Narcissus	Narcissus, Daffodil		8	10,11,12
Parthenocissus quinquefolia	Virginia Creeper	Vine	3	11,20,26
Prunus virginiana	Choke Cherry	Tree	3	5
Rheum rhaporticum	Rhubarb	Per. herb	2,9	5,11,20
Ricinus communis	Caster Bean	Herb	4	9,11,20,24,26
Rhus toxicodendron ou radicans	Poison Ivy	Shrub	6	18,21,22,24
Rosmarinus officinalis	Rosemary	Dec. shrub	3,9	
Sambuccus canadensis	Canadian Elder	Dec. shrub	1	11,22
Solanum melongera	Eggplant	Annual	1,2,10	1,11,12,20,24
Solanum tuberosum	Potato	Annual	1,2,10	1,11,12,20,24
Tanacetum vulgare	Tansy	Per. herb	1,2	16,17,24
Tulipa	Tulip	Bulb	8	11,20
Zante deschia aethiopica	Calla	Perennial	2,5	5,6,7,20

LEGEND

Toxic Parts

1) Flowers
2) Leaves
3) Fruit
4) Seed
5) Sap
6) Whole plant
7) Pollen
8) Bulb
9) Shoots
10) Rhizome

Symptoms

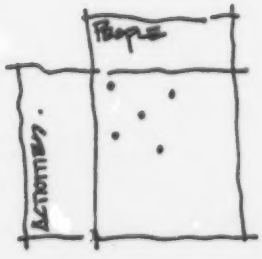
1) Depression of the central nervous system
2) Eye irritations
3) Nasal congestion
4) Abundance of mucus
5) Swelling of mouth and lips
6) Stinging sensation in mouth
7) Stomach cramps or irritations
8) Congestion of digestive tract
9) Kidney damage
10) Intestinal cramps or irritations
11) Diarrhea
12) Short breaths
13) Rapid breathing
14) Excessive sweating
15) Violent sneezing
16) Irregular pulse
17) Drop in circulatory tension
18) Generalized scratching
19) Weakness
20) Vomiting
21) Thirst
22) Nausea
23) Violent shivering
24) Convulsions
25) Paralysis
26) Death

plan development

Systematic approach in the development of a landscape design plan.

1) PROGRAM DEVELOPMENT - What are the needs, desires, expectations, philosophy of the 'client?' Who is he and what is he about? What are the project goals? List the program elements and allocate spatial needs.

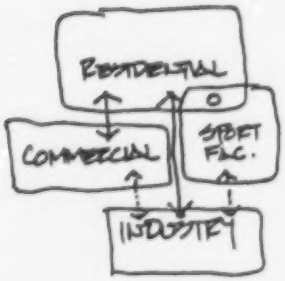
- Identify GOALS AND OBJECTIVES. Answer three fundamental questions:
  - What is the project,
  - Who is it for,
  - Why are we doing it.
- Establish PLANNING COMMITTEE.
  - Community participation.
  - Be sure all community interest groups are represented.
  - "Action" group.
- Identify TERMS OF REFERENCE.
  - What regulations must be followed.
  - What approvals must be granted and what agencies or individuals must be consulted with.
  - What facilities or services are already available within the existing community.
  - Who is to be responsible for the co-ordination of the project.
  - Who will be responsible for the maintenance of the site after construction.
- Define PROGRAM COMPONENTS.
  - Identify community needs/wishes/desires.
  - Community participation is essential at this stage. Information can be gathered through means of:
    - questionaires
    - public presentations
    - interviews
    - public discussions
    - news articles/public access TV
    - workshops/seminares
    - site visits
    - observations
    - drawing exercises/model building
  - Do not be critical of community values. Responsive (and responsible) design should reflect these values.
  - The design professional has an important role to play as "facilitator".
  - Do not waste time in meetings. They should be well organized with specific goals or tasks set to be accomplished.
  - Not only must people contribute, they must "feel" they are contributing.
  - Identify what should be built and/or provided.
  - Priorize the list of needs/components to be planned for.



2) SITE INVENTORY - What's there? Look at everything both on site and record it as it is! Understand the natural and cultural processes at work. Document the site in photos, sketches, diagrams, plans - note personal impressions of site! "Gut" reactions are important.

- The physical features to be studied are:
  - vegetation
  - landform/topography
  - drainage patterns
  - sun and wind patterns
  - soils conditions
  - geologic formations and subsoil conditions
  - utilities and services
  - existing landuses and activities of adjacent site
  - unique features
  - potential site access/entry points
  - wildlife patterns and habitats

3) SITE ANALYSIS - Assess the site in terms of its physical assets and liabilities. Identify site hazards and fragile areas that should be avoided. What potential does the site have for development? Are any elements of the program incompatible with any of the natural factors of the site? Is the program feasible with site? Re-evaluate program if not!!!



4) PROGRAM EVALUATION - Identify the interrelationships of program elements and assess intensity of these relationships. This arrangement is not yet a plan for it is done in the abstract - "Bubble Diagram". No topographic plan is introduced, nor scale assumed. The diagram expresses the relative spatial area covered by the program elements and articulates basic circulation.

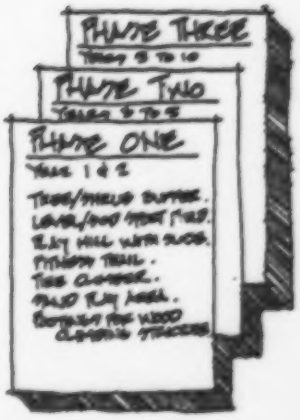
- Identify spatial requirements of the proposed program and determine if sufficient space is available on the site.
- Identify potential problems or conflicts with adjacent land uses and activities.
- Essential to this step is a thorough recognition and understanding of community values.
- A proper "fit" between values and environment is sought.

5) CONCEPT PLAN - Organize program elements to actual scale and integrate with the natural features of the site. Now you are working with a plan. Further refinements of this plan can be undertaken through shifting of spaces, stretching, warping, raising or lowering and compromising in order to achieve maximum harmony of site with program objectives.

- Work sessions with "cut-outs"(templates) and bubble diagrams.
- Organize and "fit" the program components to the site.

- Study relationships between the site and the proposed activities and resolve conflicts.
- Give form to the site consistent with community values and environmental characteristics.

6) IMPLEMENTATION/EVALUATION



- Develop strategy for "building the project matching resources (funds, materials, people) and plan (program components).
- Identify what has to be built first. What is a logical sequence for the implementation of the remaining phases.
- Develop short range and long range strategies.
- Designate phases of construction based on available resources (money, material, people), a logical sequence of construction, and community priorities.
- Be sure necessary approvals have been sought and received.
- Monitor use of the site during and after construction to identify and resolve problems.
- Modify plan to resolve unforseen problems and take advantage of new opportunities. No plan is "carved in stone".

This design process identifies landscape architecture and distinguishes it from building design. It presupposes that the whole expression will achieve fine form in close harmony with the original terrain or sites, natural processes without serious sacrifice of important plan relationships as established by the concept. This whole process constitutes landscape architecture as a technique and a fine art.

equipment

PLAY EQUIPMENT REPRESENTATIVES/SUPPLIERS

During the past few years there has been a significant change in the availability and commercial representation for playground equipment in Manitoba. The following is a list of current (January, 1990) representatives and suppliers for locally available equipment. If you want to know more about specific items of equipment, please write or phone the local sale representative. In addition, there are a number of local metal-work and carpentry shops which will fabricate play equipment to order. Check the yellow pages of your most recent phone book for corrections to this listing.

BEAVER PLAYGROUND EQUIPMENT
General Delivery
Woodlands, MB R0C 3H0
Tel: 1-383-5380

BESTWAY PLAY STRUCTURES
4020 Rebeck
East St.Paul, MB
R0E 0H0
Tel: 1-668-9077/668-5483

CDC RECREATION INC.
P.O.Box 2669
Winnipeg, MB
R3C 4B3
Tel: 275-5518
Don Depoe

CROZIER AGENCIES
8-1865 Sargent Ave.
Winnipeg, MB
R3H 0E4
Tel: 774-6084
Ken Crozier
Represents Gametime of Canada

FINNSKOGA PLAY SYSTEMS INC.
289 Gordon
Winnipeg, MB
R3L 0L7
Tel: 667-8296
Robert Gillespie

HORIZON PLAYGROUND EQUIPMENT INC.
P.O.Box 59, R.R. 1
Morris, MB
R0G 1K0
Tel: 1-746-8852/746-2026
Arthur Dueck

KOMPAN PLAYSCAPES INC.
P.O.Box 1515
Winnipeg, MB
R3C 2Z4
Tel: 477-6596
Don Pearson

ROYAL STEWART LTD.
49 Adelaide Street
Winnipeg, MB
R3A 0V8
Tel: 942-0091
Fax: 943-5939
Bill Duynisveld
Represents Hilan Creative Play Structures

SHORTY'S FENCING LTD.
3818 Wilkes Ave.
Winnipeg, MB
R3S 1A9
Tel: 895-0202
Fax: 895-7641

SPEAR SUPPLY LTD.
16 - 1832 King Edward St.
Winnipeg, MB
R2R 0N1
Tel: 694-1553
Fax: 633-1423
Jan Morgan
Represents Children's Playgrounds Inc., Landscape Structures Inc.(Mexico Forge), Henderson Recreation Equipment, Beaver Playground Equi.

WALLACE & WALLACE FENCES LTD.
1450 Wilson Place
Winnipeg, MB
R3T 3N9
Tel: 475-7655
Fax: 284-1868
Represents Big Toys of Canada